DYSON COLLEGE INSTITUTE FOR SUSTAINABILITY AND THE ENVIRONMENT

2018-2019 Annual Report

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MESSAGE FROM THE EXECUTIVE DIRECTOR

This is the fourth Annual Report of the Dyson College Institute for Sustainability and the Environment (DCISE). The activities and initiatives described in the Report clearly show how DCISE continues to fulfill its mission as a dynamic academic center and resource for the College, the University and members of the external community who are concerned about environmental issues. It continues and expands actions that integrate the environmentally-related academic and co-curricular activities within Dyson College, engage faculty and students who have interest in various aspects of environmental and sustainability issues, and partner with environmentally-conscious outside organizations in both academic and outreach capacities.

This year, DCISE has increased its outreach activities, which include a number of community programs. For example, the University has become a core member of the Environmental Monitoring and Management Alliance (EMMA), whose mission is to create a regional ecological monitoring network that informs sustainable management and conservation practices. The Department of Environmental Studies and Science has continued to expand its activities, developing new programs, notably a Conservation Management Certificate, a Sustainability minor, and a joint BA in Environmental Studies/MA in Environmental Policy. The Nature Center has engaged students at both the college and high school level in environmental programs, and the Center for the Arts, Society and Ecology has provided students with programs that allow them to experience the interaction between science and the arts. The coming year will continue our efforts in teaching, research, and training about today's environmental issues.

Sincerely,

Richard B. Schlesinger, PhD

COVER: *The Dyson College Nature Center Pavilion.* ***INSIDE COVER****: Jonathon Taylor '22, Environmental Science, works as a garden keeper in Pace's Pleasantville Organic Vegetable Garden. In this photo, taken by Nature Center Director Angelo Spillo, Jonathon harvests Scarlet Queen turnips.* ***BACK INSIDE COVER (TOP)****: Students in the field course Habitats of the Hudson Valley (ENV 297J) travelled to Teatown Lake Reservation to identify habitats and to document their health. This course, taught by Clinical Associate Professor Michael Rubbo, PhD, provides students with hands-on experience conducting the types of ecological assessments that state agencies and conservation organizations conduct on a regular basis.* ***BACK INSIDE COVER (BOTTOM)****: Students in the course Environmental Chemistry (ENV 222) ready to head into Choate Pond. This course, taught by Senior Lecturer Mary Margaret (Peggy) Minnis, PhD, covers topics like air pollution, water pollution and cleanup, soil fertility, agricultural chemicals, nuclear topics, plastics, hazardous waste, acid rain, ozone depletion, greenhouse gases, and photochemical smog.*

WHO WE ARE

The Dyson College Institute for Sustainability and the Environment (DCISE) is dedicated to using inquiry and knowledge in service to environmental conservation and sustainability.

This is achieved through faculty research, teaching and service on issues such as biodiversity conservation, policy, and sustainability. DCISE also trains students, environmental professionals and local communities through a variety of outreach programs.

These efforts advance our vision of supporting an engaged and well-informed society working to conserve the environment.

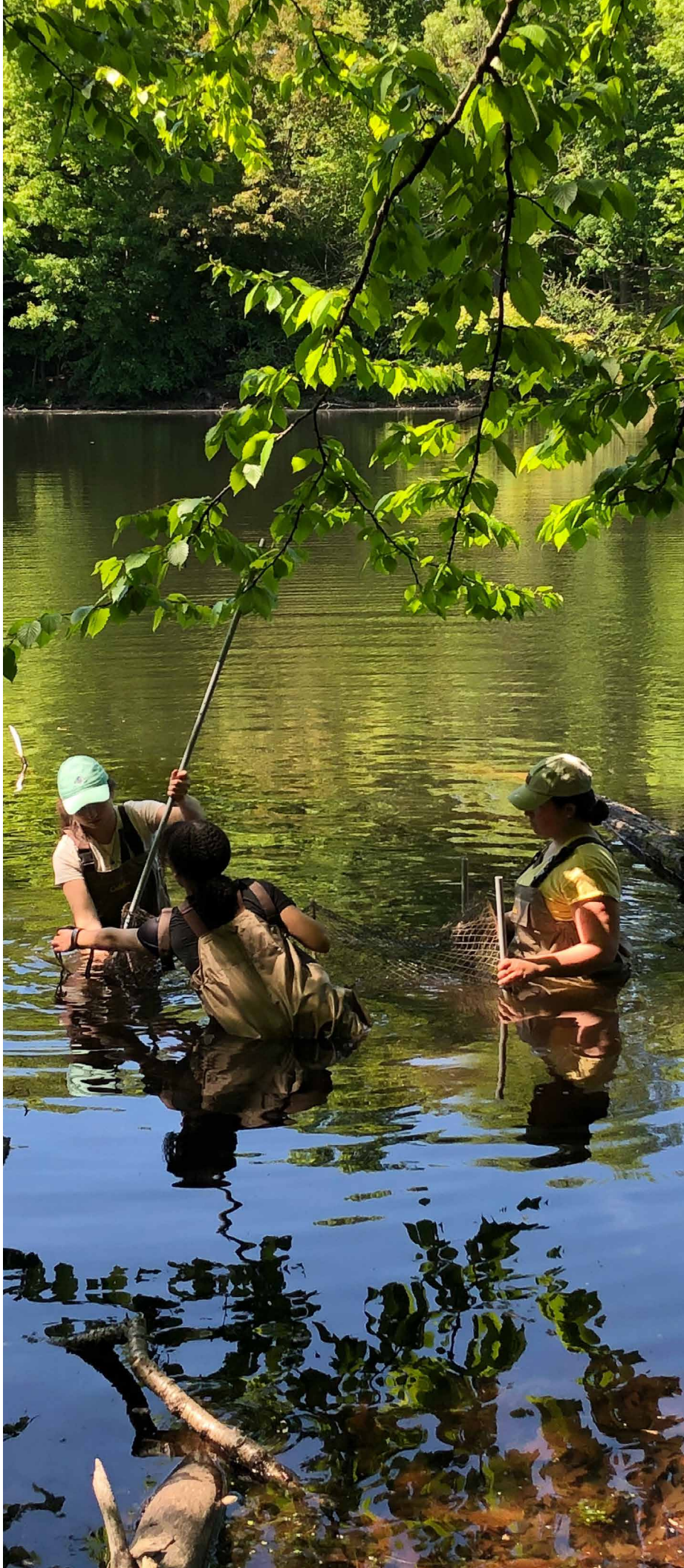
This report presents an overview of the activity of DCISE, including the Institute's constituent units, the Department of Environmental Studies and Science; the Dyson College Nature Center; and the Dyson College Center for the Arts, Society and Ecology, for the 2018-2019 academic year.

KEEP IN TOUCH WITH DCISE

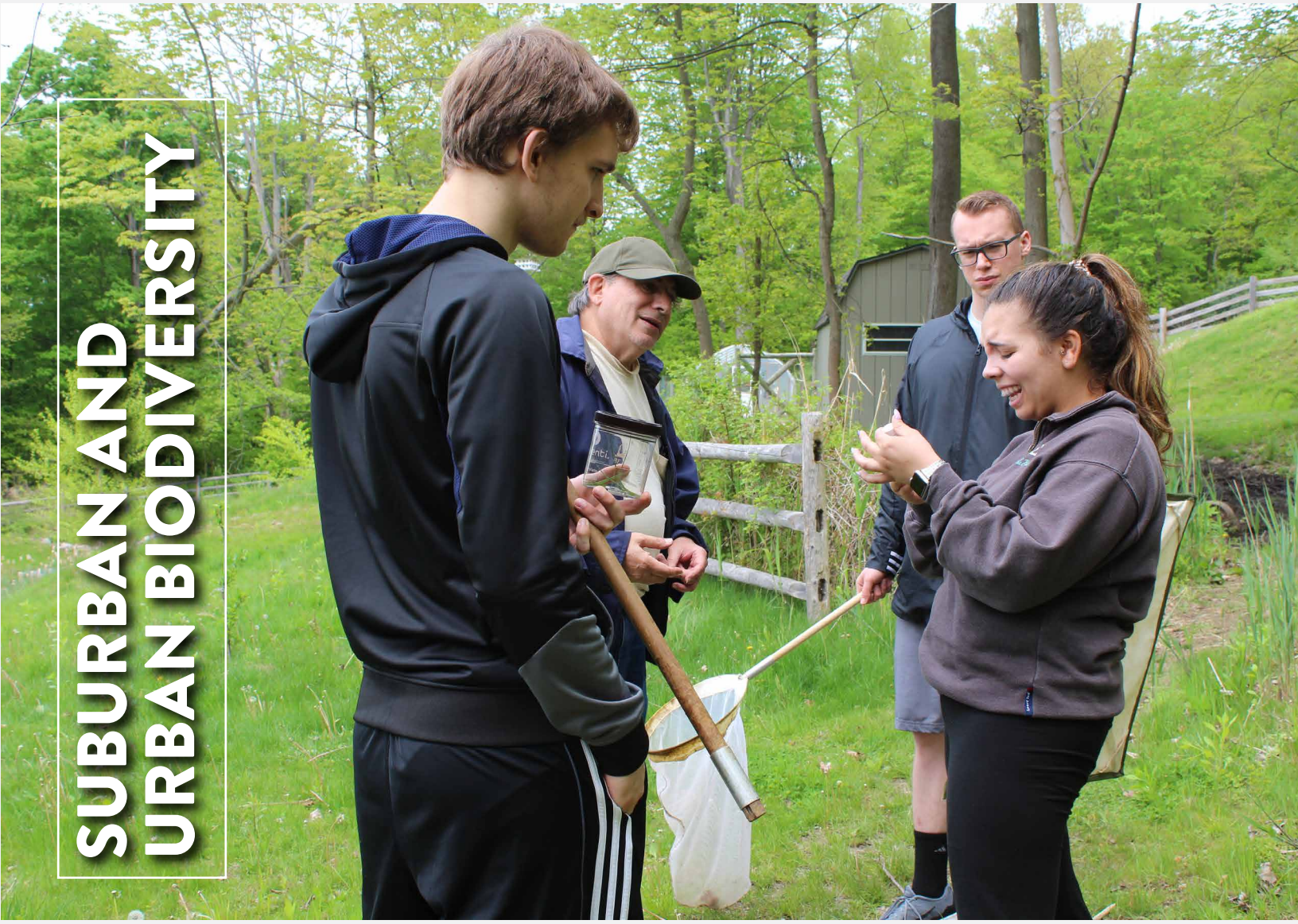
Visit us at **www.pace.edu/dysonenv**.

Follow us on Instagram, Facebook and Twitter **@dysonenv**.

Read the blog for and about the Department of Environmental Studies and Science @ **ess.blogs.pace.edu**.



KEY FOCUS AREAS



SUBURBAN AND URBAN BIODIVERSITY

Pace University's campuses in Pleasantville, White Plains and New York City span suburban and urban landscapes. DCISE is committed to studying and improving ecological diversity in these environments.

IN THE PHOTO ABOVE: ***Summer Jett-Munro '21****, Environmental Studies, helps identify insects with expert Naturalist Harry Zirlin during Pace's first BioBlitz. At the event, students helped track the biodiversity of Pace's Westchester campus by identifying a total of 40 different types of insects, in addition to several other species of flora and fauna.*

OUTREACH AND COMMUNITY ENGAGEMENT

DECODING THE WEATHER MACHINE

October 2018 | New York City campus

DCISE and Pace's Environmental Studies and Science (ESS) department hosted panelists Ryan Chavez of Uprose, Danny Peralta of The Point CDC, Leslie Velasquez of El Puente, and ESS Assistant Professor **Anne Toomey**, PhD, to discuss how a changing climate is impacting New York City's most vulnerable residents and some of the actions their organizations are taking to fight this impact.

The event was moderated by **Michael Finewood**, PhD, assistant professor in the Environmental Studies and Science department, co-hosted by the New York City Environmental Justice Alliance (NYC-EJA), and included a screening of PBS NOVA's impactful film *Decoding the Weather Machine*.

BIOBLITZ

This year, students, staff and faculty from the Pleasantville and New York City campuses joined experts in the fields of birds, insects, fungi, plants, turtles and fish to help take a snapshot of the biodiversity of the Pleasantville campus.

PARTICIPANTS IDENTIFIED:

- 60 species of plants
- 40 types of insects
- 17 species of mushrooms
- 12 species of lichens
- 41 species of birds
- 7 species of mammals
- 1 species of fish

BACKYARD WILDERNESS

October 2018 | Pleasantville campus

DCISE screened *Backyard Wilderness*, an award-winning film that shines light on suburban biodiversity through a stunning array of unique wildlife images and behavior for Pace students, staff, faculty and their families. Following the film, the Emmy Award-winning director/producer Susan Todd answered questions from the audience.

POCANTICO RIVER WATERSHED MEETING

April 2019 | Teatown Lake Reservation

Teatown Lake Reservation hosted the Pocantico River Watershed Alliance community meeting where Pace Clinical Associate Professor **Michael Rubbo**, PhD, discussed his recent work addressing conservation and stewardship in the Pocantico River Watershed and what part the community can play in this work.

HUDSON TO HOUSATONIC ALL-PARTNERS MEETING

December 2018 | Pleasantville campus

DCISE hosted this meeting of partners who advance regional land protection and stewardship. The guest speaker was Kate Brandes, a geologist and environmental scientist who presented on native landscaping for communities and wildlife.

KEY FOCUS AREAS

PROFESSIONAL TRAINING

DCISE provides hands-on training to Pace students; connects students to community partners for internships and externships; and works with environmental stakeholders so that they may advance their environmental conservation and sustainability initiatives. DCISE also provides a place for our community to meet and discuss the environmental issues that are affecting our region and the world.

*IN THE PHOTO ABOVE: DCISE Director of Outreach and Clinical Associate Professor **Michael Rubbo**, PhD, hosts a workshop for local municipalities and non-profit organizations performing conservation work in the Hudson Valley to find funding opportunities supporting their work.*

STUDENT PROGRAMS

ENVIRONMENTAL POLICY CLINIC

This unconventional course, co-taught by DCISE Senior Fellow **John Cronin** and DCISE Director of Programming and Clinical Associate Professor **Michelle D. Land**, JD, trains undergraduate students to research, design and advocate for legislative and regulatory policies while earning course credit. The clinic was at the forefront of emerging environmental issues in New York State this year, including road salt control, the sale of invasive red-eared slider turtles, the Green New Deal, and the US Army Corps' $60 billion proposal to construct storm gates in New York Harbor.

Two highlights of the Clinic's 2018-19 agenda were a student drafted bill to create a statewide training program for road salt applicators, introduced in the New York State Assembly and Senate in June; and a proposal to Congress to establish a New York-based National Center for Coastal Resilience.

INTERNSHIP MEETINGS

DCISE hosted one-on-one meetings between Pace students and representatives from local environmental organizations. n Pleasantville, representatives included Riverkeeper, Wolf Conservation Center, Westchester Land Trust, Teatown Lake Reservation, Green Busines Partnership, Greenburgh Nature Center, and more. In New York City, representatives included the American Museum of Natural History, Center for Biodiversity and Conservation, Billion Oyster Project, Nature Conservancy, New York Botanical Garden, NYC Parks Department, US Environmental Protection Agency, and more. These representatives learned about our students' interests and goals, offered career mentorship, and recruited multiple students for their open positions.

SIXTH ANNUAL MOCK LEGISLATIVE HEARING

Thirty undergraduate students representing nine different majors presented testimony at the annual Mock Legislative Hearing. Student teams advocated for environmental legislative and policy initiatives in New York State, including: the construction of wildlife bridges; ocean and estuary protection; removal of abandoned dams; ban of invasive pet species sales, and prohibition of leaf blowers.

The winning testimony was awarded to the Alliance for the Construction of Wildlife Bridges (**Ashley Cardona '23**, **Marta Sadornil Ruiz '21**, **Sedona Trellevik '21**, **Taylor Ganis '21**, and **Austin Levine '23**). The award for best presenter was given to **Hayley Lewis '22**.

COMMUNITY PROGRAMS

SCIENCE TRAINING FOR ENVIRONMENTAL PROFESSIONALS SERIES (STEPS)

In 2019, DCISE launched this free professional development workshop series that trains local environmental stakeholders to help advance their environmental conservation and/or sustainability initiatives.

This year, DCISE hosted the following:

The **Psychology of Science Communication** workshop led participants in exercises to enhance science communication with the public, such as story-telling and emotional reasoning.

The **Latest Citizen Science Research** workshop discussed the effectiveness of citizen science programs for increased scientific literacy and environmental stewardship, and helped environmental managers to think about how they might develop new citizen science programs, or improve on existing programs.

The **Funding Opportunities for Supporting Conservation in the Hudson Valley** information session brought in three major funding agencies (the Hudson River Estuary Program, the Hudson River Valley Greenway, and the New York State Conservation Partnership Program) to discuss funding priorities and eligibility and allowed participants to ask questions and network with representatives.

ENVIRONMENTAL LEADERS LEARNING ALLIANCE (ELLA)

In March 2019, DCISE partnered with Teatown Lake Reservation and the Federated Conservationists of Westchester County to launch the Environmental Leaders Learning Alliance (ELLA), an education and training program for individuals on town, village, or city conservation commissions, planning boards, and open space commissions throughout the region. DCISE will be working with its ELLA partners to develop training programs over the next year.

Represented at the kickoff meeting were sixteen municipalities, including: the Towns of Ossining, Mount Pleasant, Bedford, New Castle, Lewisboro, Rye, Eastchester, Scarsdale, Yorktown, Pound Ridge, and Putnam Valley; the Villages of Pleasantville, Irvington, Ardsley, Hastings-on-Hudson; and the City of Peekskill.

ENVIRONMENTAL MONITORING AND MANAGEMENT ALLIANCE (EMMA)

Pace recently joined the Environmental Monitoring and Management Alliance (EMMA) as a core member. EMMA is composed of academic institutions, non-profits, and state agencies located throughout the Hudson Valley (www.emmahv.org).

The mission of this alliance is to create a regionally-coordinated ecological monitoring network that informs sustainable management practices and natural resource conservation. As part of EMMA, Pace will contribute data on local forests, mammal communities, and climate. There are a number of opportunities for student involvement through both research experiences and internships.

KEY FOCUS AREAS

DCISE works to engage the Pace community in sustainability education, awareness, inspiration, change, and stewardship.

*In the photo above, Pace Garden Keeper **Ryan Moutenot '22**, Environmental Studies, and **Yash Patel '20**, Psychology, kneel next to a Swiss chard bed and show off some freshly picked peppers in Pace's Pleasantville Organic Vegetable Garden.*

GREENPACE SUSTAINABILITY COMMITTEE

GreenPace serves as an incubator of ideas where Pace University students, staff, faculty and administrators can develop sustainability proposals, create research projects, and implement various green practices, while involving the Pace and outside community in its efforts. Since its inception in 2008, GreenPace has put forth multiple efforts to make the Pleasantville, New York City and White Plains campuses more sustainable. Below are some highlights from the past year.

SOLAR TREE

A solar powered eTree is set to be installed on Pace's Pleasantville campus during fall 2019, thanks to the diligent work of two Pace MA in Environmental Policy students, **Pavan Naidu '18** and **Alexandra DeRosa '18**.

The eTree will serve as a central location on the Pace Pleasantville campus for students to collaborate, convene and learn. The eTree is nearly 15 feet tall and carries seven insulated solar panels to generate up to 1,400 watts of energy, and will provide wi-fi, a charging station, night illumination, shade, and an interactive LCD display screen providing information about the electricity generated by the tree.

COMPOSTING FOOD WASTE

A team of student volunteers led by GreenPace intern, **Noah Brennan '21**, BA Environmental Studies/MA Environmental Policy, maintained the Earth Tub composter throughout the year. Food scraps totaling 2,075 pounds from Dining Services were composted and applied to the Pleasantville Organic Garden.

GREENPACE AWARD

Congratulations to winners of the 2019 GreenPace Awards:

- **Richard Shadick**, Director of the NYC Counseling Center;
- The Pace Law Environmental Program;
- **Carly Sheinberg '19**, Environmental Studies student; and
- The Pace Sustainability Initiative.

PACE SUSTAINABILITY INITIATIVE (PSI)

This student organization is spearheading sustainable changes on Pace University's NYC campus under the guidance of its faculty advisor, ESS Assistant Professor **Anne Toomey**, PhD. The club was formed in fall 2017 through a merging of the Sustainability Network at Pace (SNAP), created by **Carly Sheinberg '19**, Environmental Studies, and PSI, created by **Thomas Carpenito '21**, Biology.

PSI has been executing several initiatives and events since its inception, including convincing the University to attach aerators to all dorm faucets, which will save an average of 2,688,781 gallons of water and $35,479 annually.

DEPARTMENT ACHIEVEMENTS

The Department of Environmental Studies and Science (ESS), led by Chair E. Melanie DuPuis, PhD, is a vibrant bi-campus unit with a curriculum refined to meet today's real-world challenges. Both the undergraduate and graduate degree programs stress training in analytical thinking – multiple frameworks, measurement, media literacy, communication – with hands-on skills such as field identification, habitat assessment, geographic information systems (GIS) and policy research, and advocacy.

IN THE PHOTO ABOVE: Students in the class Environmental Science: Web of Life (ENV221) took a trip to the River Project's marine field station in the Hudson River Park Estuarine Sanctuary to learn about the organization's ecosystem protection and restoration projects, including water quality monitoring and oyster education research.

NEW PROGRAMS

ENVIRONMENTAL CONSERVATION CERTIFICATE

This 15-credit program, available on the Pleasantville campus, ensures that students are competitive for employment in the conservation field and is especially appropriate for students interested in working with plants or animals, protecting habitats, or educating the public about the environment. The program consists of five classes, all of which qualify as major electives for Pace's Environmental BA or BS degrees. Enrollment will officially begin in fall 2019.

SUSTAINABILITY MINOR

This growing 12-credit minor offered on the NYC campus focuses on urban areas and industrial issues. The department added a new "sustainable projects" course taught as a tutorial under *ENV235* by Assistant Professor **Anne Toomey**, PhD, during which students carried out sustainability projects on the NYC campus. **Anne Toomey** also brought students to the 2018 State of New York Sustainability Conference, held at Colgate University, to present on their projects as part of a student panel.

BA IN ENVIRONMENTAL STUDIES/MA IN ENVIRONMENTAL POLICY

This five-year combined degree program, available on both the Pleasantville and New York City campuses, gives students the ability to gain the training they need to become job ready in less time for less money. Students acquire advanced professional experience through a required externship in federal, state and county governments; environmental and conservation nonprofits and environmental law organizations; or policy think tanks. The MA in Environmental Policy's first cohort of students graduated with a 100% employment rate, working at the United States Congress and New York State Legislative offices, the New York Power Authority, Green Business Partnership, Teatown Lake Reservation and NYU Office of Sustainability.

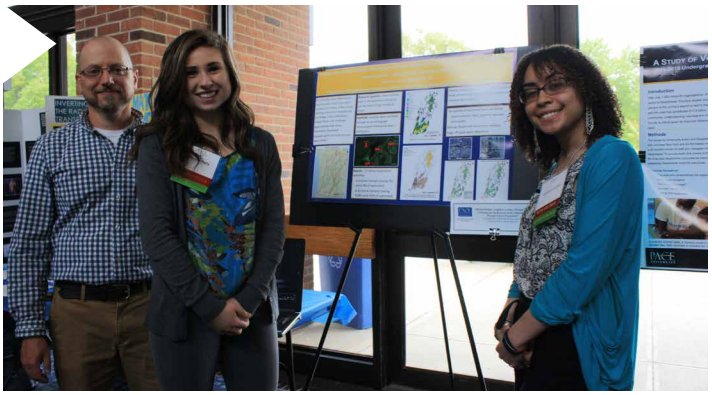
NEW COURSES DEVELOPED

- *ENV140: Act Locally: Sustainable Design and You*. This is a revised version of the current *ENV140*, with the addition of a design aspect.
- *ENV265: Diversity and the Environment: Multiple Perspectives from Across the World*. This course will be the revised version of what is currently *ENV112: Basic Issues*.
- *ENV 297M: Humans and Ecosystems*. This special topics course focuses on how humans are impacting the function of ecosystems and how changes in ecosystems are affecting human well-being.
- *ENV297S: Citizen Science*. This elective course takes a detailed look at the history and evolution of citizen science and, in particular, how it connects to the relationship between science and society. It also examines the many different ways people perceive and engage with science, particularly ecological science, through participatory research, boundary organizations, policies and laws.

STUDENT/FACULTY RESEARCH: ENVIRONMENTAL STUDIES AND SCIENCE (ESS) DEPARTMENT

BIODIVERSITY IN THE SUBURBS

Clinical Associate Professor **Michael Rubbo**, PhD, and students **Angelica Arocho '22**, Environmental Science, and **Morgan Kelly '20**, MS in Environmental Science, presented their research entitled "Biodiversity in the Suburbs: The Pocantico River Watershed as a Hotspot for Natural Resources" at the 2019 Student and Faculty Research Days. Their work included a habitat assessment and mammal survey of the watershed, and they used the data to identify priority areas for conservation.



EMERGENCE LAB: THE RELOCALIZATION OF URBAN FOOD SYSTEMS

To what extent will the cities of the future produce their own food? Some futurists see cities as taking a much larger role in the production of food, while others see a future of closed loop production, where food waste becomes compost that is used to grow food in local community gardens, and commercial firms grow primarily on rooftops. New technical changes in vertical farming systems based in agro-ponics have also led to new entrepreneurial start-ups providing urban food to local markets. **Professor DuPuis** and students are examining the emergence of these new urban food systems asking, **(1)** what is the role of local small-scale community production systems like community gardens in feeding future city populations? What other services – greenspaces, urban cooling, social meeting spaces -- do these gardens provide to local residents? **(2)** to what extent can the social and municipal efforts to compost food waste lead to a more closed loop food system in cities? **(3)** can the claims of vertical farm and rooftop agriculture entrepreneurs be realized: namely, the localization of significant amounts of food production into cities?

CONEY ISLAND URBAN WATERFRONT GOVERNANCE

Monica Palta, PhD, and **Anne Toomey**, PhD, assistant professors in the ESS department, teamed up on a project to investigate the social-ecological dynamics of urban waterfront governance along the Coney Island Creek in Brooklyn. The creek is currently the site of an active combined sewer outfall, which results in raw sewage and stormwater bypassing treatment plants and overflowing directly into the creek during storms. Assistant Professor **Palta** is carrying out an ecological study of the creek, with a specific look at the extent and sources of nutrient pollution in the system, and whether filter feeders in the creek (mussels, oysters) are effectively removing this nutrient pollution.

Assistant Professor **Toomey** has been documenting the social-cultural uses and perceptions of the water quality of the creek. Various Pace students and alumni have been involved in this research, including **Brielle Manzolillo '17**, **Christina Thomas '19**, **Elaina Kovnat '20**, and **Tatyana Graham '21**. This summer, Professors **Palta** and **Toomey** will work with the students to team-write a paper that combines the natural and social science data to tell a larger story of human-waterfront dynamics in New York City.

SPOTLIGHT ON: ENVIRONMENTAL STUDIES AND SCIENCE STUDENTS

Alexxis (Allie) Granger '19, MA in Environmental Policy, was recently offered the position of Policy Associate, Farm Animal Program at the Animal Welfare Institute in Washington DC. This highly competitive position was well earned for Allie, who held transformative internships at Riverkeeper and the Humane Society of the United States, and an externship with Congresswoman Nita Lowey's office during her time at Pace.

At the 2018 State of New York Sustainability Conference, **Carly Sheinberg '19**, Environmental Studies, was awarded the Leadership Excellence Award. As a founding member of the Pace Sustainability Initiative, Carly worked to improve sustainability issues on the NYC campus, including running a recycling training program for incoming Pace students. She also contributed to environmental organizations in New York City, including the Red Hook Added Value Farm and GrowNYC.

Joshua Barry '19, MS in Environmental Science, was recognized as Dyson's Outstanding Graduate Student of the Year at the 2019 Dyson College Annual Awards Ceremony. Joshua is working as a graduate researcher at Panthera, an organization devoted to the conservation of the world's 40 wild cat species and their ecosystems, and recently published a co-authored paper in *Oecologia*, highlighting the ecosystem engineering role of pumas for beetle communities.

Brielle Manzolillo '17, Environmental Studies, focused her senior capstone project on human perceptions of urban coyotes. Brielle became a research partner at the Gotham Coyote Project, helping to add human dimensions to the scientific data they were collecting. Brielle is starting work in the Department of Forest and Rangeland Stewardship at Colorado State University, getting her MS in Forest Sciences, and researching policy surrounding the reintroduction of wolves in Colorado.

Upon graduating from the MA in Environmental Policy program, **Andrew Welch '18** was offered a position as Program Administrator in New York University's Office of Sustainability. While at Pace, Andrew served as the Climate Smart Communities Coordinator for the Village of Pleasantville, conducting a Greenhouse Gas Inventory and leading the municipality through the certification process, working with its administrative team and residents toward a Climate Action Plan.

Tatyana Graham '21, Environmental Science, spent the summer interning in the United States Environmental Protection Agency's Wetlands Protection Section Branch. She has been working to update their online database to include historical wetlands mitigation cases and conducting a survey on the viability of oyster restoration projects. Tatyana also attended meetings with various divisions to learn more about the EPA and is strongly considering working for a government agency in the future.

Christina Thomas '19, a dual Economics and Environmental Studies major, worked in the New York City Mayor's Office of Resiliency and Recovery as part of a one-year paid internship. In this role, she discovered ways to help New York City become more resilient, and helped conduct research for the Cool Neighborhoods NYC program, which involved analyzing temperature data for neighborhoods in New York City to see which are the warmest, and thus, may need more attention than others.

INTERMURAL AND EXTRAMURAL FUNDING

Food Waste
Funding Source: Pace Undergraduate Student & Faculty Research Program ($1,750)
Investigators: Carly Sheinberg '19; Melanie DuPuis, PhD, faculty mentor/supervisor

Investigating the Social Ecological Dynamics of Urban Waterfront Governance in Coney Island, Brooklyn
Funding Source: Wilson Faculty Fellowship for 2018-2019 academic year
Investigator: Anne Toomey, PhD, (research carried out in coordination with the New York Urban Field Station and the Billion Oyster Project)

Nutrient Pollution and Nutrient Removal by Bivalves in Coney Island Creek, New York
Funding Source: Summer Research 2019 Pace Undergraduate Student & Faculty Research Program ($1,250)
Investigators: Tatyana Graham '21; Monica Palta, PhD, faculty advisor/primary investigator

RCN-UBE Incubator: The Biological and Environmental Data Education Network
Funding Source: National Science Foundation ($72,361)
Investigators: Andrew Kerkhoff (Principal Investigator); Matthew Aiello-Lammens, Sarah Supp, Susy Echeverria-Londono (Co-Principal Investigators)

Demographic Monitoring of Glossy Buckthorn
Funding Source: Pace Summer Research Grant
Investigator: Matthew Aiello-Lammens, PhD

The Role of Green Infrastructure Incentive Programs in Meeting Urban Stormwater Challenges
Funding Source: Dyson Research Funds to Support a Student Researcher ($3,000)
Investigator: Olivia Pierce '21; Michael Finewood, PhD, faculty mentor/primary investigator

GRANT CONTINUATIONS:

Expanding Wallace Biodiversity Modeling Software to Support National Biodiversity Change Indicator Calculations for GEO BON Assessment and Reporting
Funding Source: NASA
Co-Investigator: Matthew Aiello-Lammens, PhD

ABI Innvovation: Wallace: A Flexible Platform for Reproducible Modeling of Species Niches and Distributions Built for Community Expansion
Funding Source: National Science Foundation ($593,000)
Co-Principal Investigator: Matthew Aiello-Lammens, PhD

Culvert Management Planning for Amphibian Connectivity
Funding Source: New York State Department of Environmental Conservation
Co-Investigators: Matthew Aiello-Lammens, PhD and John Cronin

FACULTY PUBLICATIONS

Barry, J.M.^, Elbroch, L.M., **Aiello-Lammens, M.E., Sarno, R.J.**, Seelye, L., **Kusler, A.**^, Quigley, H.B., **Grigione, M.M.** Pumas as Ecosystem Engineers: Ungulate Carcasses Support Beetle Assemblages in the Greater Yellowstone Ecosystem. *Oecologia*, 189 3 577-586. (2019).

Cooper, C. and **Finewood, M.H.** Benefits of College Farms & Gardens. *Today's Dietitian*, Pages 20-24 (2018).

DuPuis, E.M. and Greenberg, M. J. The Right to the Resilient City. *Journal of Environmental Studies and Sciences*. (2019).

DuPuis, E.M. Diet and the Disease of Civilization. *The Journal of Interdisciplinary History*, 49:4, 654-656. (2019).

DuPuis, E.M. Setting Nutritional Standards: Theory, Policies, Practices. *The Journal of Interdisciplinary History*. 48:4, 548-549. (2018).

Finewood, M.H. and Henderson, J. What Higher Education Can Bring to Resilience: Reports from Pace University's Water Resilience Conference. *Journal of Environmental Studies and Sciences*. (2019).

Finewood, M.H. and McGreevey, S. Leading Through Water: Defining Sustainability Through Leadership, Experience, and Engagement. *Suburban Sustainability*, edited by Robert Brinkmann and Sandra J. Garren. Florida: University of Florida Press. (Accepted, Nov. 2018).

Finewood, M.H., Matsler, A.M., and Zivkovich, J. Green Infrastructure and the Hidden Politics of Urban Stormwater Governance in a Postindustrial City. *Annals of the American Association of Geographers*, 109(3):909-925. (2019).

Fink, K., **Finewood, M.H.**, **Molnar, L.**^. Framing Pier 55: Negotiated Resilience and Contested Waterfronts. *Journal of Environmental Studies and Sciences*. (2018).

Manzolillo, B.^, Henger, C., **Hall, N.**^, **Graham, T.***, **Toomey, A.H**. "Are coyotes "Natural"? Differences in Perceptions of Coyotes Among Urban and Suburban Park Users." *Cities and the Environment*. (In Press).

Moore, T.E, Bagchi, R., **Aiello-Lammens, M.E.**, Schlichting, C.D. Spatial Autocorrelation Inflates Niche Breadth–Range Size Relationships. *Global Ecology and Biogeography*, 27 12 1426-1436. (2018).

Palta, M.M. and Stander, E.K. Wetlands in Urban Environments. In *Handbook of Urban Ecology*, 2nd Edition (I. Douglas, D. Goode, M. Houck, and R. Wang, eds.). Routledge, New York. (2019).

Toomey, A.H. The Making of a Conservation Landscape: Towards a Practice of Interdependence. *Conservation & Society*. (In Press).

^Graduated Pace student
*Current Pace student

***Danny Deo '19**, Environmental Science, carries out lab analyses on water quality in rivers in Trinidad for his capstone project at the CUNY Advanced Science Research Center.*

DEPARTMENT ACHIEVEMENTS

The Nature Center is located on Pace University's Pleasantville campus and is open to Pace students, staff, faculty, and the Pleasantville community. The Nature Center's resources include an organic vegetable garden, an outdoor pavilion (equipped with wifi), a hawk barn, beekeeping apiary, farm barn, pollinator garden and wetlands trail.

*IN THE PHOTO ABOVE: **James Eyring**, Assistant Director of the Nature Center, gives a presentation of Pace University's birds of prey during Environmental University Day.*

HOW YOU CAN UTILIZE THE NATURE CENTER

The Center hosts several wellbeing programs for Pace staff, including gardening, yoga, and Tai Chi held in the outdoor pavilion, nature trail walks, and the very popular "Meet the Animals" programs, where staff interact with the animals of the Nature Center.

The Center is available to Pace faculty to utilize in their teaching or bring classes to the Center to have Assistant Director **James Eyring** teach a personalized program with the Center's animals, nature trails or gardens.

NATURE CENTER PROGRAMS AND EVENTS

ENVIRONMENTAL UNIVERSITY DAY

October 2018 | Pleasantville campus

The Nature Center hosted over 100 local high school students at Pace's Pleasantville campus to participate in Environmental University Day, an educational program that enhances awareness of urgent environmental issues and showcases a number of current Pace initiatives. This year's program included field study labs led by ESS Assistant Professors **Matthew Aiello-Lammens**, PhD, and **Michael Rubbo**, PhD. **Andrew Welch '18**, MA in Environmental Policy, participated in the event's panel presentation on the technology and policy implications of real-time water monitoring.

EARTH MONTH

April 2019 | Pleasantville campus

Nature Center staff sponsored Pace's 15th Annual Earth Month program, offering over 25 events during the month of April, that were a compilation of academic, recreational, celebratory, and informational programs. Some of the highlights featured birds of prey demonstrations, bee keeping presentations, a poetry reading, classroom lectures, nature walks, and tree planting ceremonies.

NATURE CENTER PROGRAMS AND EVENTS, CONT.

PLEASANTVILLE ORGANIC GARDEN

The Pleasantville Organic Vegetable Garden serves as an experimental and demonstration area utilizing techniques in harmony with the natural environment. Different methods are employed in the garden, including "Square Foot Gardening," "Straw Bale Gardening," "Companion Planting," and growing in raised beds.

This spring, Nature Center staff including student Garden Keepers **Ryan Moutenot '22**, Environmental Studies, **Brennan Boudreaux '23**, Global Studies, and **Jonathan Taylor '22**, Environmental Science, along with student and staff volunteers, seeded over 700 plants in the hoop house, most of which were planted in the garden. This group has also been expanding the educational components of the garden by creating signs and small plant identification plaques that will enable visitors to learn about the garden and some of the growing techniques employed.

ENVIRONMENTAL EDUCATION AND INTERPRETATION

This new interactive Environmental Studies class (*ENV274*), co-taught by Clinical Associate Professor **Michael Rubbo**, PhD, and Nature Center Director Angelo Spillo in the spring of 2019, utilized the Nature Center as a prime component of the course, serving as the "lab" for students to design and work on class projects.

The class focuses on how to deliver environmental concepts and messages to a variety of audiences, using approaches such as environmental education and programmatic training. Students were tasked with developing an educational program that highlighted the diversity of resources the Center provides to the Pace community. The class also developed a scavenger hunt program, including developing goals and learning outcomes, creating a marketing campaign with flyers and social media, and establishing the budget.

DEPARTMENT ACHIEVEMENTS

CENTER FOR THE ARTS, SOCIETY AND ECOLOGY

The Center for the Arts, Society and Ecology (CASE) fosters creative collaborations and research between the arts and sciences to support an understanding of complex ecological systems, help solve society's environmental challenges, and inspire positive change for future generations.

IN THE PHOTO ABOVE: Students and Professor **Eve Andrée Laramée** *visited the Newtown Creek Wastewater Treatment Center in Greenpoint, Brooklyn, where they learned about the New York State watershed; the reservoirs and water tunnels that serve New York City and Westchester County; our wastewater, sewage and storm water streams and their impact on East River ecology, water quality, and conservation.*

CASE HIGHLIGHTS

Under the direction of its director, Professor **Eve Andrée Laramée**, the Center for the Arts, Society and Ecology (CASE) provides experiential learning opportunities to students through various field trips and events. Below are some highlights from the past year.

VISITING ARTIST: JAN MUN

Artist Jan Mun, whose work explores social and environmental issues using a combination of artistic and scientific methods, visited students to discuss urban beekeeping and colony collapse disorder. She also discussed her work as part of the ExxonMobil Greenpoint Petroleum Remediation Project, where oyster mushrooms were used for soil remediation or decontaminating the soil.

IMPACT OF GENTRIFICATION ON RIVERFRONT HABITATS

Students traveled to the New York City waterfront to explore the impact of gentrification on riverfront habits. After seeing these issues firsthand, students were tasked with drawing the river-front and capturing the impacts they witnessed.

TRANSFORMERS: NATIVE ART IN LIGHT AND SOUND

Students visited the National Museum of the American Indian in New York City to see the Climate Change exhibition, *Transformers: Native Art in Light and Sound*. This exhibit presents the work of 10 indigenous artists' responses to climate change, land and habitat loss, and other environmental issues.

FIELD TRIP WITH ARESH JAVADI

Artist, educator and community activist Aresh Javadi led Pace students on a tour of 12 community gardens in the Lower East Side of Manhattan. The group discussed environmental policy, urban gardening, local politics, gentrification and activism.

DIY CHOP SHOP

Students were taught how to redesign, reuse, and repurpose clothing through sewing and stenciling at this event. Environmental problems raised by the "Fast Fashion" industry, such as water pollution, the use of toxic chemicals and increasing levels of textile waste were covered. The project culminated in a fashion photo shoot where students were able to model their designs. CASE also organized a screening of the film *Unravel*, that explores the cost of fast fashion by following the western world's least wanted clothes as they travel to India.

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*Students in the field course Habitats of the Hudson Valley (ENV297J) travelled to Teatown Lake Reservation to identify habitats and to document their health. This course, taught by Clinical Associate Professor **Michael Rubbo**, PhD, provides students with hands-on experience conducting the types of ecological assessments that state agencies and conservation organizations conduct on a regular basis.*

*Students in the course Environmental Chemistry (ENV222) ready to head into Choate Pond. This course, taught by Senior Lecturer **Mary Margaret (Peggy) Minnis**, PhD, covers topics like air pollution, water pollution and cleanup, soil fertility, agricultural chemicals, nuclear topics, plastics, hazardous waste, acid rain, ozone depletion, greenhouse gases, and photochemical smog.*

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